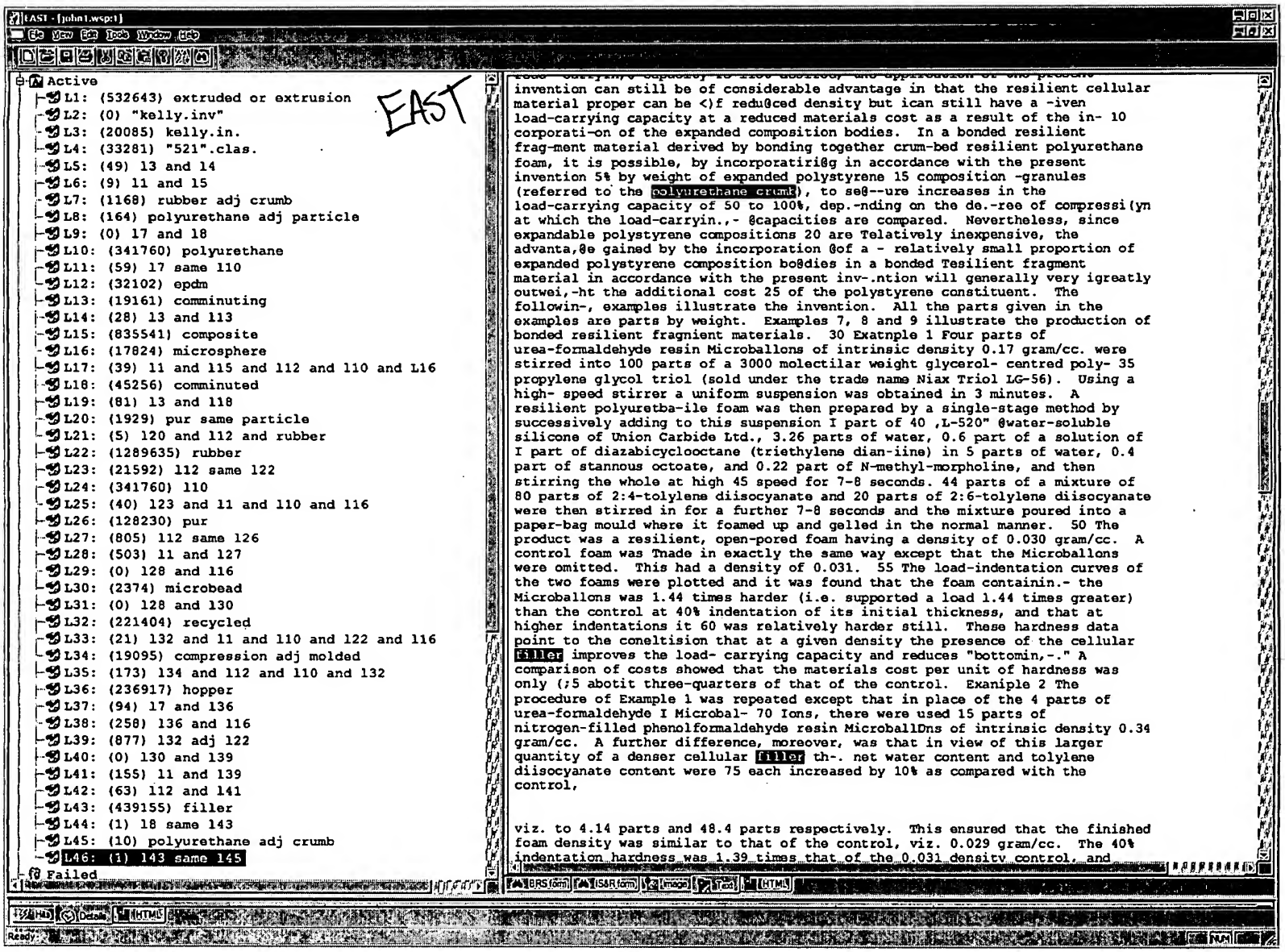
EAST - [John1.wsp:1]
File View Edit Tools Window Help
Active
L1: (532643) extruded or extrusion
L2: (0) "kelly.inv"
L3: (20085) kelly.in.
L4: (33281) "521".clas.
L5: (49) 13 and 14
L6: (9) 11 and 15
L7: (1168) rubber adj crumb
L8: (164) polyurethane adj particle
L9: (0) 17 and 18
L10: (341760) polyurethane
L11: (59) 17 same 110
L12: (32102) epdm
L13: (19161) comminuting
L14: (28) 13 and 113
L15: (835541) composite
L16: (17824) microsphere
L17: (39) 11 and 115 and 112 and 110 and L16
L18: (45256) comminuted
L19: (81) 13 and 118
L20: (1929) pur same particle
L21: (5) 120 and 112 and rubber
L22: (1289635) rubber
L23: (21592) 112 same 122
L24: (341760) 110
L25: (40) 123 and 11 and 110 and 116
L26: (128230) pur
L27: (805) 112 same 126
L28: (503) 11 and 127
L29: (0) 128 and 116
L30: (2374) microbead
L31: (0) 128 and 130
L32: (221404) recycled
L33: (21) 132 and 11 and 110 and 122 and 116
L34: (19095) compression adj molded
L35: (173) 134 and 112 and 110 and 132
L36: (236917) hopper
L37: (94) 17 and 136
L38: (258) 136 and 116
L39: (877) 132 adj 122
L40: (0) 130 and 139
L41: (155) 11 and 139
L42: (63) 112 and 141
L43: (439155) filler
L44: (1) 18 same 143
L45: (10) polyurethane adj crumb
L46: (1) 143 same 145
Failed
EAST
invention can still be of considerable advantage in that the resilient cellular material proper can be <)f redu@ced density but ican still have a -iven load-carrying capacity at a reduced materials cost as a result of the in- 10 corporati-on of the expanded composition bodies. In a bonded resilient frag-ment material derived by bonding togethher crum-bed resilient polyurethane foam, it is possible, by incorporatiri@g in accordance with the present invention 5% by weight of expanded polystyrene 15 composition -granules (referred to the polyurethane crumb), to se@--ure increases in the load-carrying capacity of 50 to 100%, dep.-nding on the de.-ree of compressi(yn at which the load-carryin.,- @capacities are compared. Nevertheless, since expandable polystyrene compositions 20 are Telatively inexpensive, the advanta,@e gained by the incorporation @of a - relatively small proportion of expanded polystyrene composition bo@dies in a bonded Tesilient fragment material in accordance with the present inv-.ntion will generally very igreatly outwei,-ht the additional cost 25 of the polystyrene constituent. The followin-, examples illustrate the invention. All the parts given in the examples are parts by weight. Examples 7, 8 and 9 illustrate the production of bonded resilient fragnient materials. 30 Exatnple 1 Four parts of urea-formaldehyde resin Microballons of intrinsic density 0.17 gram/cc. were stirred into 100 parts of a 3000 molectilar weight glycerol- centred poly- 35 propylene glycol triol (sold under the trade name Niax Triol LG-56). Using a high- speed stirrer a uniform suspension was obtained in 3 minutes. A resilient polyuretba-ile foam was then prepared by a single-stage method by successively adding to this suspension I part of 40 ,L-520" @water-soluble silicone of Union Carbide Ltd., 3.26 parts of water, 0.6 part of a solution of I part of diazabicyclooctane (triethylene dian-iine) in 5 parts of water, 0.4 part of stannous octoate, and 0.22 part of N-methyl-morpholine, and then stirring the whole at high 45 speed for 7-8 seconds. 44 parts of a mixture of 80 parts of 2:4-tolylene diisocyanate and 20 parts of 2:6-tolylene diisocyanate were then stirred in for a further 7-8 seconds and the mixture poured into a paper-bag mould where it foamed up and gelled in the normal manner. 50 The product was a resilient, open-pored foam having a density of 0.030 gram/cc. A control foam was Tnade in exactly the same way except that the Microballons were omitted. This had a density of 0.031. 55 The load-indentation curves of the two foams were plotted and it was found that the foam containin.- the Microballons was 1.44 times harder (i.e. supported a load 1.44 times greater) than the control at 40% indentation of its initial thickness, and that at higher indentations it 60 was relatively harder still. These hardness data point to the coneltision that at a given density the presence of the cellular filler improves the load- carrying capacity and reduces "bottomin,-." A comparison of costs showed that the materials cost per unit of hardness was only (;5 abotit three-quarters of that of the control. Exaniple 2 The procedure of Example 1 was repeated except that in place of the 4 parts of urea-formaldehyde I Microbal- 70 Ions, there were used 15 parts of nitrogen-filled phenolformaldehyde resin MicroballDns of intrinsic density 0.34 gram/cc. A further difference, moreover, was that in view of this larger quantity of a denser cellular filler th-. net water content and tolylene diisocyanate content were 75 each increased by 10% as compared with the control,
viz. to 4.14 parts and 48.4 parts respectively. This ensured that the finished foam density was similar to that of the control, viz. 0.029 gram/cc. The 40% indentation hardness was 1.39 times that of the 0.031 density control, and
BRS Form
ISR Form
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HTML
Detail
HTML
Ready
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